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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/585,921	06/02/2000	David Eppes	AMDA.478PA	6312

7590 07/30/2003

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EXAMINER	
NGUYEN, JIMMY	

ART UNIT	PAPER NUMBER
2829	

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/585,921	Applicant(s) EPPES ET AL.	
	Examiner Jimmy Nguyen	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Argument

The amendment filed 5/14/03 have been fully considered with the following effect;

The applicant argues that the heating element (16) of Hsu located external from the substrate (14) and therefore, it does not correspond with the claim invention. The examiner found this argument persuasive. However, upon further search the examiner makes new rejection.

1. The indicated allowability of claim 14 is withdrawn in view of the newly discovered reference(s). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Lipp (US 5309090).

As to claims 1, Lipp discloses (fig 1) a method for manufacturing and analyzing a semiconductor die including;

Forming a plurality of heating elements (2) in the die (5)

While operating the die (5, the die operate by connecting to the testing Apparatus from the control signal 1), selectively controlling (1) the heating elements (2) and therein using at least one of the heating elements (2) at least one adjacent portion of the die (5)

Analyzing the die via operation (by the testing apparatus connect with control signal 1, external control or tester, not shown, column 2 line 53 - 54).

As to claim 2, Lipp discloses (fig 1) selectively (1) controlling the heating elements (2) includes accessing a group of the heating elements (column 4 line 34 – 40) to heat at least one adjacent portion of the die (5) and wherein operating the die includes running a test pattern on a portion of the die suspected to cause a failure.

As to claim 3, Lipp discloses (fig 1) the method for manufacturing and analyzing a semiconductor die (5) the die includes electrically coupling the die (5) to a signal generator (external controller connect through signal line 1, not shown) adapted to supply test signals.

As to claim 4, Lipp discloses (fig 1) selectively (1) controlling the heating elements (2) includes accessing a group of the heating elements (column 4 line 34 –

40) to heat at least one adjacent portion of the die (5) and further including detecting that die (5) is malfunctioning (by the testing apparatus, not shown).

As to claims 5, 6, Lipp discloses (fig 1) the portion of the die (5) being heated at the time that a malfunction is detected and correlating the portion of the die being heated to a critical timing path.

As to claim 7, Lipp discloses (fig 1) the flip chip bonded die (5) and a wire bonded die.

As to claims 8, 9, Lipp discloses (fig 1) selectively controlling (1) the heating elements (2)and therein causing at least one of the heating elements (2) to draw power (9) in a manner that slows the operation of circuitry in at least one adjacent portion of the die (5).

As to claims 10, 11, Lipp discloses (fig 1) selectively controlling (1) the heating elements (2) includes causing a portion of the die (5) to heat to a selected temperature and selected at a sequence.

As to claims 12, 13, 21, Lipp discloses (fig 1) selectively controlling (1) the heating elements (2) includes causing at least two of the heating elements (2, from the plurality of IC, column 4 line 34-40) to generate heat, and wherein the at least two of the heating elements (2) are located sufficiently distant from each other so that the heat

from one does not interfere with heat from another one of elements the plurality of heating elements in the die includes grid of heating elements.

As to claim 14, Lipp discloses (fig 1) a method for manufacturing and analyzing a semiconductor die including;

Forming a plurality of heating elements (2) in the die (5)

While operating the die (5, the die operate by connecting to the power supply 9), selectively controlling (1) the heating elements (2) including

grouping the heating elements (2) into selected groups, each group having two or more heating elements (2);

causing the selected groups to heat in a sequence (by control line 1)

detecting (from the external controller, not shown) a response from the die (5) that indicates that the die is operating defectively; and

in response to detecting the defective operation, identifying the selected group being caused to heat when the response is detected; and selectively operating individual heating elements (2) of the selected group and therein causing at least one of the heating elements (2) to heat at least one adjacent portion of the die (5)

Analyzing the die via operation (by the testing apparatus connect with control signal 1, external control, not shown, column 2 line 53 - 54).

As to claims 15 - 20, 26, Lipp discloses (fig 1) detecting a temperature characteristic related to the heated portion of the die (5); and in response to the detected temperature characteristic (by the sensor 3), controlling the heating via a feedback loop, control register and using temperature sensor (3 and 4).

As to claims 22 , 23, Lipp discloses (fig 1) a test system including Control (1) means for selectively causing at least one of the heating elements (2) to generate heat and to heat a portion of the die (5) therefrom;

Operating (by the power supply 9) means for operating the die (5); and

Detection (external tester throughout line 1) means for detecting a response from the die (5).

As to claims 24, 30, Lipp discloses (fig 1) the testing device (not shown, connect throughout line 1, external tester) and the controller are included in a single testing arrangement

As to claims 25, Lipp discloses (fig 1) each heating element (2) includes at

least one of resistive metal, a transistor, a diode, doped metal and a polysilicon trace

As to claims 27- 29, 31, Lipp discloses (fig 1) a stage (obvious) to hole the die (5) and electrically couple the die to the testing device (computer not shown external tester, connect throughout line 1)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Nguyen at (703) 306-5858. Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4900.

JN.
July 16, 2003

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